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INDEXES OF AGRICULTURAL DEVELOPMENT

Less Developed Countries, 1970

May 1971

Foreign Economic Development Service
U.S. Department of Agriculture

cooperating with

U.S. Agency for International Development

ABSTRACT

Indexes of Agricultural Development, through a series of economic indicators, attempts to provide an insight to the state of agricultural development in 1970 in the less developed countries of Africa, Latin America, and Asia. It notes that, while agricultural output continued its rapid increase in 1970, per capita production gains were modest. Production of the three major grains--wheat, rice, and corn--registered a 4.2 percent increase over 1969 and was up 17.4 percent over the average 1964-68 production. High-yielding varieties likely accounted for some of this increase, with nearly 44 million acres of HYV wheat and rice planted in 1969/70 (31 million in 1968/69). Export prices for rice, affected by larger supplies, are generally lower than 1969, while wheat, corn, and tropical crops such as coffee are steady to stronger. U.S. concessional agricultural sales to LDCs are declining as commercial sales climb. The publication ends with various benchmark statistics on less developed regions compared to the United States.

Key Words: Less developed countries, Economic growth, Production indexes, High-yielding varieties, Per capita food production, World grain prices, Rice, Wheat, Corn, International trade, Concessional sales, Commercial sales, Population growth, Per capita GNP, LDC agricultural labor force.

FOREWORD

This report was compiled by Dana G. Dalrymple and James R. Sayre of the Foreign Economic Development Service (FEDS).

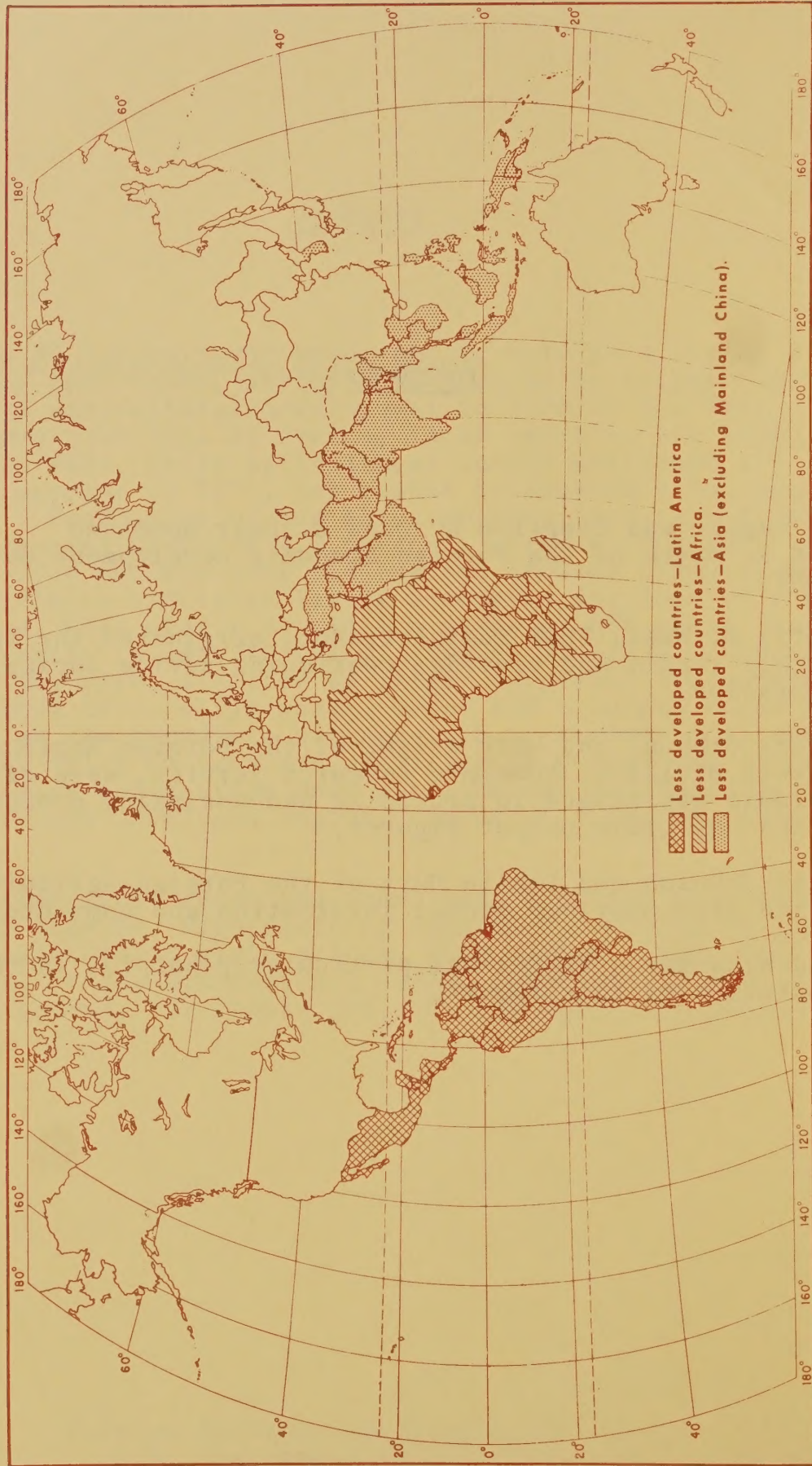
Quentin M. West, FEDS Administrator, originated the idea for this report and provided continuing advice during its preparation.

Charles Gibbons and Mary Wright of the Foreign Regional Analysis Division, Economic Research Service, were of considerable assistance in providing and analyzing production indexes and grain output figures.

Donald Johnson and Leslie Hurt of the Foreign Agricultural Service also provided useful information and comments.

David Winkelmann (FEDS) was particularly helpful in the preparation of this report.

LESS DEVELOPED COUNTRIES



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INTRODUCTION

The stage of agricultural development in the less developed countries (LDCs) is, like "beauty," often times in the eyes of the beholder. To some, looking at the impressive yield gains piled up by new grain varieties, agricultural development is well on its way to making the LDCs self-sufficient in food. Others, apprehensively watching spiraling population growth rates, are far less sure.

It is a very complex task to evaluate progress in agricultural development in the LDCs. Still, scattered statistical data are available which provide a start in this direction. Several of these statistical series are compiled in this report. Emphasis has been placed on aggregative time series available through 1970. The statistics are accompanied by a brief interpretive text.

In more specific terms, the report will:

- *Highlight recent trends in LDC agricultural production, on both a total and per capita basis.
- *Pinpoint production levels of rice, wheat, and corn.
- *Trace the spread of the high-yielding grains.
- *Describe trends in major grain and coffee prices.
- *Document the changing character of trade between the United States and the LDCs.
- *Relate such selected benchmark statistics as population growth rates, per capita gross national product, and proportion of the labor force in agriculture.

The countries generally included in this report are indicated on the chart opposite the table of contents. In some cases data were not available. The following areas and countries, it will be noted, are excluded: Communist Asia, Japan, Republic of South Africa, and Cuba.

Most of the data came from USDA's Economic Research Service and Foreign Agricultural Service. Publications of these agencies which relate to this report are listed on the last page.

INDEXES OF PRODUCTION ^{1/}

Agricultural production in the less developed countries (LDCs), exhibiting the effects of the recent "green revolution," continued its fast upward climb in 1970. Population growth also climbed rapidly but, still, there was some improvement in per capita agricultural production during the year.

Total Production

Total production in the developed and the less developed world increased at about the same rate from 1960 to 1968 (figure 1). But LDC growth outmatched that of the developed world in 1969 and 1970 (some developed countries have been working to constrain production). Based on an average of 100 for 1961-65, the total LDC production index was 118 in 1969 and 122 in 1970, a growth of about 3 percent. After the mid-sixties drought in South Asia, total LDC production rose dramatically.

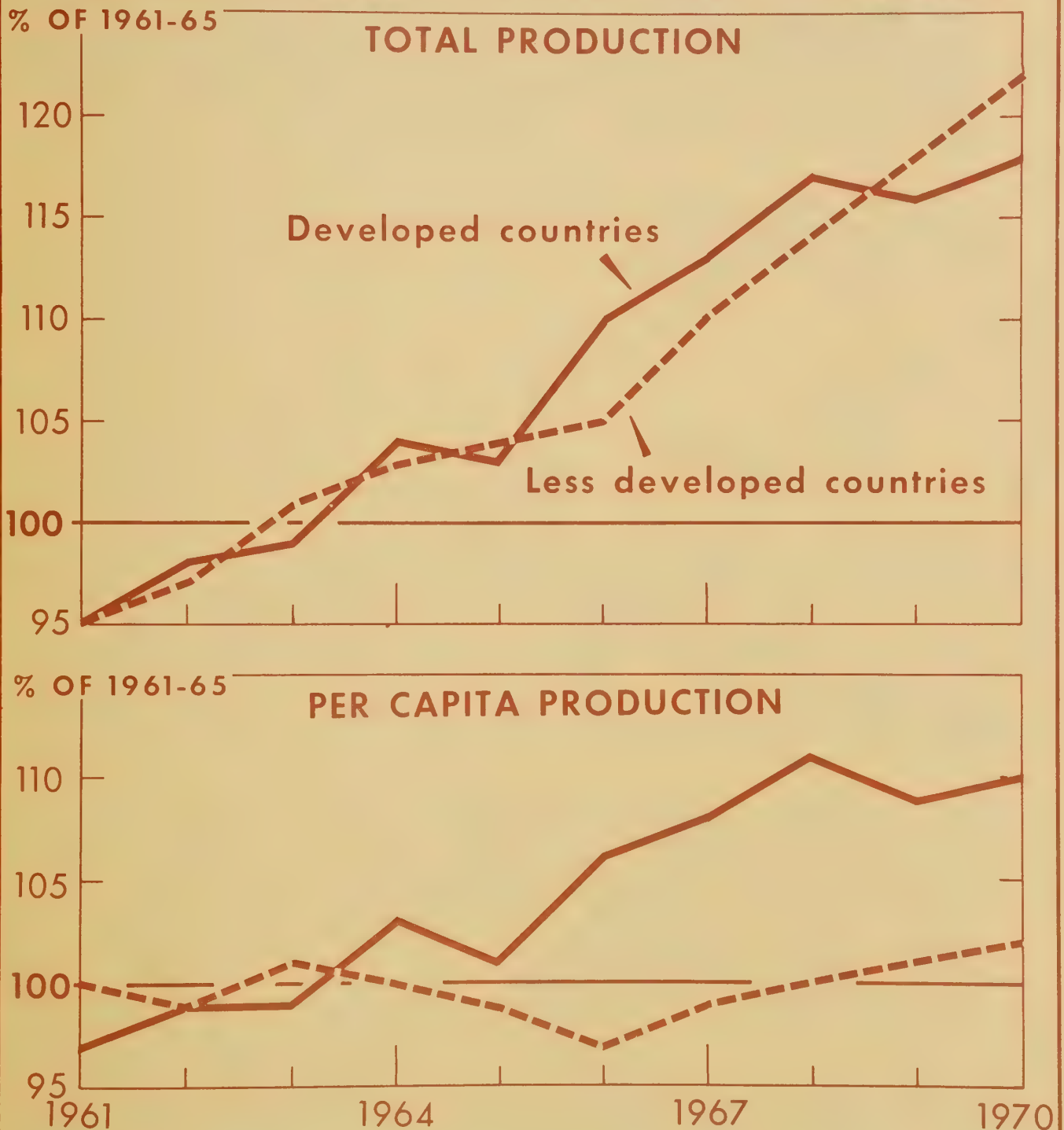
All agricultural production increased in three of the five major regions and held constant in Africa and West Asia:

	<u>1969</u>	<u>1970</u>	<u>Percentage increase</u>
Latin America	115	119	+3.5
Africa	114	114	0
West Asia	122	122	0
South Asia	120	125	+4.2
East Asia	125	128	+2.4

^{1/} This section is based on indexes developed by the Economic Research Service and calculated in March 1971. Recently received indexes computed by FAO are based on a different time period and utilized information available as of November 1970. Still they show roughly the same overall trend, though individual countries differ. The FAO figures are discussed in greater detail in the Appendix.

Figure 1

INDEXES OF AGRICULTURAL PRODUCTION IN THE DEVELOPED AND LESS DEVELOPED COUNTRIES*



*EXCLUDING COMMUNIST ASIA.

SOURCE: FOREIGN REGIONAL ANALYSIS DIVISION, ECONOMIC RESEARCH SERVICE, MARCH 1971.

Food production (total agricultural minus nonfoods such as cotton, wool, tobacco, coffee, and tea) also increased about 3 percent, from an index of 120 in 1969 to 124 in 1970. All five major regions experienced food production increases.

Per Capita Production

Agricultural production per person increased slightly from an index of 101 in 1969 to 102 in 1970. This continued the recovery from the low levels of the mid-1960s and was the highest level achieved in 10 years. But it was well below the index of 110 in the developed countries (figure 1).

Per capita agricultural output was slightly higher in South Asia, remained steady in Latin America, and decreased in the other major regions:

	<u>1969</u>	<u>1970</u>	<u>Percentage change</u>
Latin America	97	97	0
Africa	98	95	-3.1
West Asia	103	101	-1.9
South Asia	104	105	+1.0
East Asia	107	106	-0.9

Perspective on longer-term regional changes is provided in figure 2. The increase in South Asia in 1970 represented a recovery to the highest level in 10 years and more than a recovery from the drought years of the mid-1960s. The 1970 Latin American figure maintained the previous low point in a declining trend. Africa displayed a continued decline from the mid-1960s. West Asia (not shown) continued a drop from high levels reached in 1967 and 1968. East Asia dropped slightly.

The per capita food picture was slightly different. Overall production in the LDCs held constant at 103, while regionally there were increases in Latin America and South Asia and slight decreases in Africa, West Asia, and East Asia.

Indexes in Major Countries.

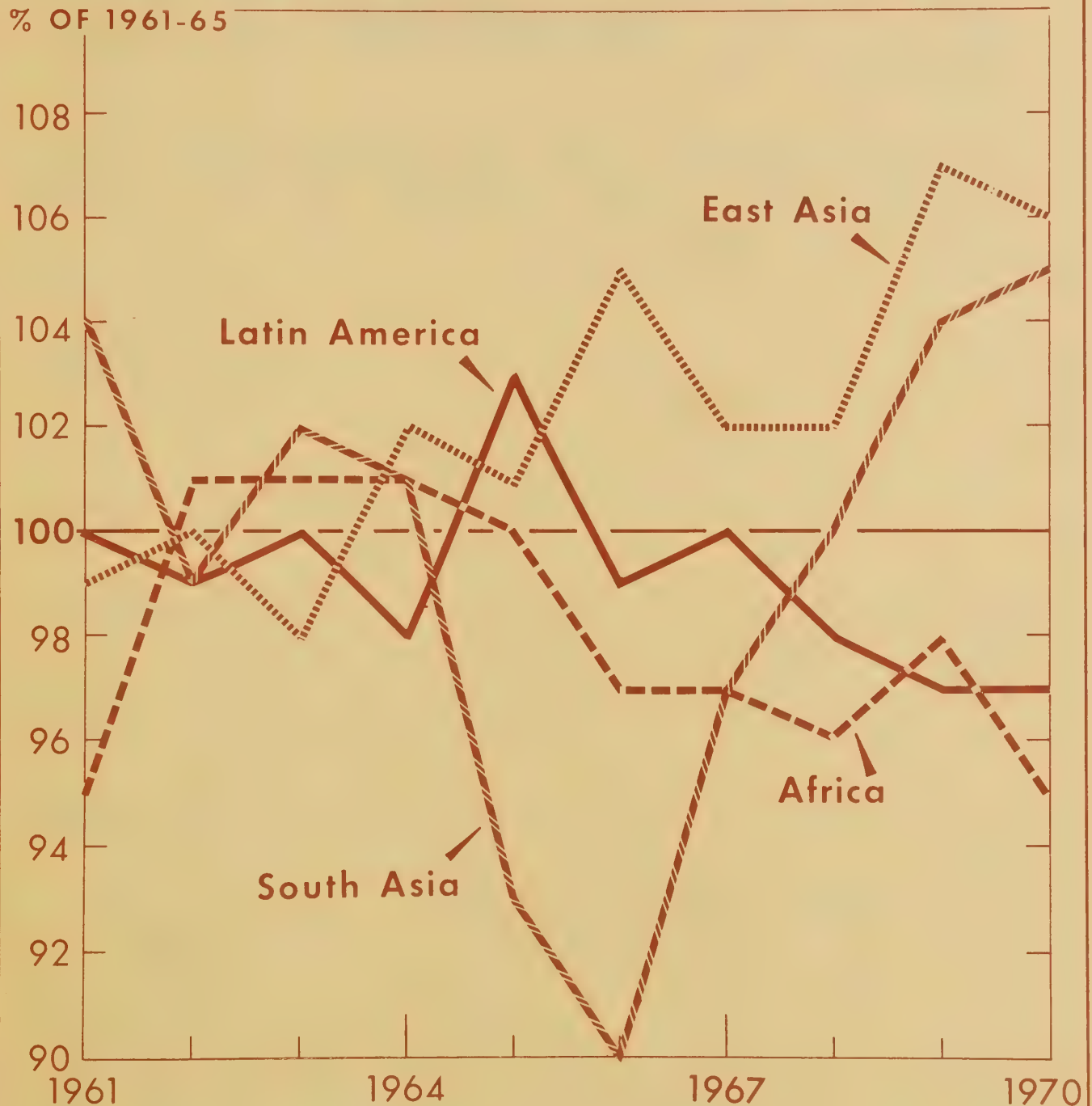
In per capita terms, the changes in the two or three most populous nations in each region generally paralleled the regional changes.

--Of the ten most populous LDCs^{1/}, Mexico showed by far the largest percentage increase from 1969 to 1970: from an index of 92 to 98 in agricultural production and from 97 to 105 in food production per person.

1/ India, Pakistan, Indonesia, Brazil, Nigeria, Mexico, Philippines, Thailand, Turkey, and UAR (Egypt).

Figure 2

INDEXES OF PER CAPITA AGRICULTURAL PRODUCTION IN THE MAJOR LESS DEVELOPED REGIONS*



*EXCLUDING WEST ASIA AND COMMUNIST ASIA.

SOURCE FOREIGN REGIONAL ANALYSIS DIVISION, ECONOMIC RESEARCH SERVICE, MARCH 1971.

--Brazil showed a decrease in agricultural production (from 101 to 98) while the food index increased from 106 to 111. (The coffee harvest was down due to a severe frost while the wheat harvest was a record high.)

--India increased from 101 to 104 in agricultural production and from 103 to 106 in food production. Pakistan's agricultural production dropped slightly (111 to 110) while food output held at 110.

--African agricultural production was pulled down by sharp decreases in Egypt (96 to 91) and Nigeria (97 to 91); the decrease in food production in Egypt was less (from 94 to 92) but the same for Nigeria (97 to 91).

GRAIN PRODUCTION

Grains comprise the basic food crop for the majority of people in the LDCs. Changes in production of the three leading grains--rice, wheat, and corn--play a major role in determining per capita food supply. In 1970, these three accounted for 82 percent of all the grain production in the LDCs, up 1 percent from the 1964-68 average.^{1/}

Total LDC Production

Aggregate Production. In terms of total output, 1970 was a reasonably good year. LDC production of the three major grains in 1970 totaled 288.4 million metric tons, up 4.2 percent from 1969 (also a good year). Compared to the 5-year period from 1964 to 1968 (which included the period of severe drought in South Asia) production was up about 17.4 percent (see table 1).

Relative Importance. Overall, rice is the major LDC grain, followed at some distance by wheat and corn which have approximately equal status. In terms of the total production in the LDCs in 1970, rice accounted for about 58 percent; corn, 22 percent; and wheat, 20 percent. Within any given region, however, the order of importance of any individual grain may be quite different.

Individual Grains. Individually, rice, wheat, and corn production changed as follows in 1970:

	<u>1969</u>	<u>Change from</u> <u>1964-68 average</u>
		<u>- -Percent- -</u>
Rice	+ 3.1	+16.5
Wheat	- 0.2	+21.7
Corn	+12.0	+16.0

^{1/} The data reported in all but the last part of this section were provided by the Economic Research Service. They exclude Communist Asia and Cuba. They differ somewhat from data reported by the Foreign Agricultural Service because (1) the data are sorted out to reflect calendar year production (the FAS data often reflect crop year data), and (2) different countries are included.

Table 1.--Estimated grain production in less developed countries

Crop and region	1970 production	Change from	
		1969	1964-68 average
	1,000 metric tons	- -Percent- -	
<u>Rice (paddy)</u>			
Asia	149,780	+ 2.6	+16.9
Latin America	10,787	+10.0	+10.6
Africa	7,063	+ 2.6	+18.3
Total	167,630	+ 3.1	+16.5
<u>Wheat</u>			
Asia	41,599	+ 3.4	+34.8
Latin America	10,100	-17.2	-13.3
Africa	6,143	+10.8	+22.3
Total	57,842	- 0.2	+21.7
<u>Corn</u>			
Latin America	36,490	+17.6	+17.1
Asia	15,593	+14.4	+21.8
Africa	10,828	- 6.1	+ 5.2
Total	62,911	+12.0	+16.0
Total (Rice, Wheat, Corn)	288,383	+ 4.2	+17.4

Source: Economic Research Service, U.S. Department of Agriculture.

Clearly, production of rice and corn in 1970 was higher than in 1969, while production of all three increased sharply over the 1964-68 average. The increase over 1969 was greatest in corn. Wheat had the largest increase over the 1964-68 average; in part this reflects recovery from drought conditions in South Asia in the mid-1960s and, in part, the effects of the "green revolution."

LDC Production by Region

Of total LDC production of the three grains in 1970, about 72 percent was in Asia, 20 percent in Latin America, and 8 percent in Africa. Asia particularly dominated rice and wheat production, whereas Latin America was the leader in corn output.

Rice. About 89 percent of LDC rice production in 1970 (excluding Communist Asia) was in Asia. Output in Asia increased 2.6 percent over 1969 and 16.9 percent over the 1964-68 average. Production also increased in Latin America and in Africa.

Wheat. LDC wheat production was also heavily concentrated (72 percent) in Asia. In 1970, Asian output increased 3.4 percent over 1969 and 34.8 percent over the 1964-68 average. A sharp drop was recorded in Latin America (principally Argentina) while Africa showed a sharp increase.

Corn. Over half (58 percent) of LDC corn production is found in Latin America. In 1970, Latin American production was 17.6 percent greater than in 1969 and 17.1 percent greater than 1964-68. A substantial increase was also recorded in Asia (which accounted for 25 percent of production), while output in Africa decreased from 1969.

LDC Production by Country

India is easily the leading free world LDC in grain production: in 1970, it accounted for about 31.3 percent of total production of wheat, rice, and corn. It was particularly important in rice (where it accounted for 38 percent of the total) and in wheat (accounting for 35 percent), but relatively less important in corn (10 percent). The sharpest percentage increase in production in 1970 over 1969 was registered in corn (+14.6 percent), followed by wheat (+7.7 percent), and rice (+5.1 percent). When the comparison is drawn with the 1964-68 average, the increase was largest in wheat. (Table 2.)

Pakistan is also an important LDC producer of rice and wheat, but a relatively minor producer of corn. Rice production is largely concentrated in East Pakistan while wheat is mostly confined to West Pakistan. Rice production in 1970

Table 2.--Estimated grain production in leading producing countries

Crop and country	1970 production	Change from	
		1969	1964-68 average
	<u>1,000 metric tons</u>	<u>- -Percent- -</u>	
<u>Rice</u>			
India	63,814	+ 5.1	+19.7
Pakistan	21,076	- 2.4	+15.7
Indonesia	16,770	+ 2.9	+18.4
Thailand	13,400	+ 0.4	+13.6
Burma	8,464	+ 6.0	+ 9.5
<u>Wheat</u>			
India	20,093	+ 7.7	+66.2
Turkey	8,000	- 3.6	- 0.1
Pakistan	7,329	+ 9.2	+55.2
Argentina	4,200	-40.2	-47.2
Iran	3,800	- 2.6	+11.2
<u>Corn</u>			
Brazil	14,200	+11.9	+21.3
Argentina	9,000	+31.2	+38.0
Mexico	8,200	+26.2	+ 0.5
India	6,500	+14.6	+23.6
Indonesia	3,066	+33.3	+ 4.2

Source: Economic Research Service, U.S. Department of Agriculture.

was reported down slightly compared to 1969 (reflecting the effect of the typhoon in November 1970), but was still up from the 1964-68 average. Wheat output was up from both 1969 and the 1964-68 average.

Elsewhere in the leading producing nations, increases were found in rice and corn output, while wheat production--reflecting poor weather--dropped in Turkey and Argentina.

Relative Roles of Area and Yield 1/

What role did changes in area and yield play in these shifts in production in 1970? This is a complex matter, but perhaps a review of the statistics for India--the largest free world LDC--may provide some insights.

India. Data for India in 1970 are compared with those for 1969 and the 1964-68 average in Table 3.

In the case of rice and wheat, the increase in yield in 1970 as compared with 1964-68 was 2.4 and 0.5 times larger, respectively, than the increase in area. Thus, much of the increase in production was due to increases in yield. The mid-1960s, however, were drought years so that this observation is subject to question. When the comparison is limited to 1969, the importance of yield emerged (and was even greater) for rice but was less significant for wheat. In either case, the area increase for corn was larger than for yield.

All LDCs. By way of comparison, over the 1948 to 1968 period, the percentage increase in area for all grains in the developing nations was slightly larger than for yield.^{2/} With the increased use of high-yielding varieties (noted in the next section) and associated inputs, yields might be expected to play a larger role in some LDCs in the post-1968 period.

1/ These data are taken from information reported by the Foreign Agricultural Service but appear to be comparable with the statistics reported in the previous sections. Within the table the data for area and yield usually do not add exactly to that for production.

2/ Dana G. Dalrymple, "Trends in Grain Area and Yield in Developed and Developing Nations," American Journal of Agricultural Economics, August 1970, pp. 448-449. (Based on FAO data.)

Table 3.--Role of area, yield, and production in India,
1970 compared with previous years

Crop		Change from	
		1969	1964-68 average
		- -Percent- -	
<u>Rice</u>			
	Area	+ 0.9	+ 5.2
	Yield	+ 3.0	+12.3
	Production	+ 3.9	+18.2
<u>Wheat</u>			
	Area	+ 4.2	+23.2
	Yield	+ 3.4	+34.4
	Production	+ 7.7	+66.1
<u>Corn</u>			
	Area	+ 9.1	+16.5
	Yield	+ 4.9	+ 5.9
	Production	+14.5	+23.7

Source: Foreign Agricultural Service, U.S. Department of Agriculture.

HIGH-YIELDING GRAIN VARIETIES ^{1/}

Rice and wheat, two crops historically basic to man's diet, have recently broken traditional yield limits in the developing countries. New rice and wheat varieties have the potential to sharply increase yields in some LDCs. They have a short, sturdy stem, able to absorb high fertilization without falling to the ground. To reach their yield potential, however, these varieties require large amounts of fertilizer, adequate water, and other inputs.

There is no one standard definition of high-yielding varieties; the following data refer largely to the dwarf and semi-dwarf types of wheat and rice developed, respectively, in Mexico and the Philippines. Area estimates for free world nations may be summarized as follows (1969/70 data are preliminary):

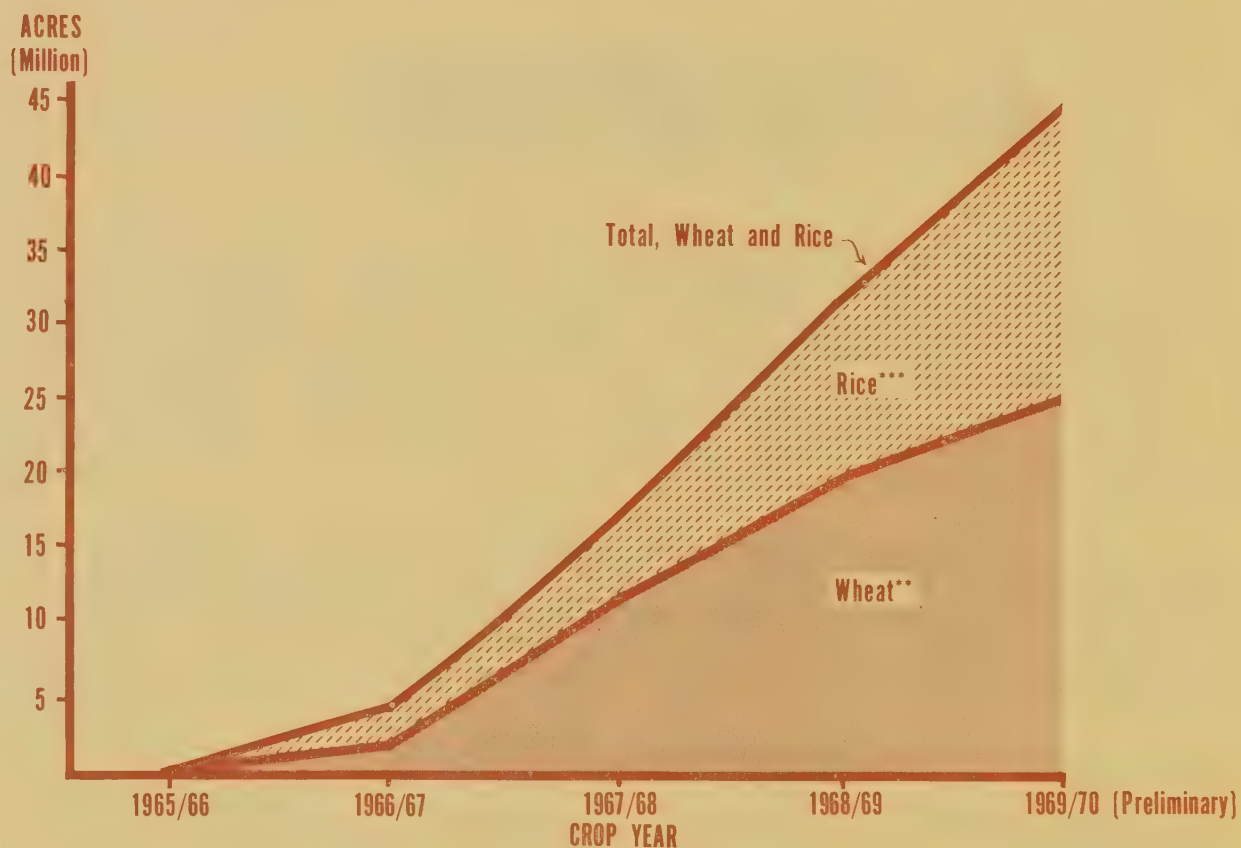
<u>High-yielding varieties</u>			
<u>Crop year</u>	<u>Wheat</u>	<u>Rice</u>	<u>Total</u>
	- <u>-1,000 acres-</u> -		
1965/66	23	18	41
1966/67	1,542	2,505	4,047
1967/68	10,173	6,487	16,660
1968/69	19,699	11,620	31,319
1969/70	24,664	19,250	43,914

Most of the wheat and all of the reported rice area was in South and East Asia; of the 1969/70 total for both, 59 percent was in India and 20 percent in Pakistan. Limited areas of high-yielding wheat have been planted in West Asia, North Africa, and Latin America.

^{1/} Dalrymple, Dana G., Imports and Plantings of High-Yielding Varieties of Wheat and Rice in the Less Developed Nations, FEDR-8, Foreign Economic Development Service, U.S. Department of Agriculture, January 1971.

Figure 3

ESTIMATED AREA PLANTED TO HIGH-YIELDING VARIETIES OF WHEAT AND RICE IN THE LESS DEVELOPED COUNTRIES



*Data based on information available as of December 31, 1970.

**Excluding Mexico.

***Excluding improved local varieties in Ceylon and Taiwan, but including improved local varieties in India and the Philippines.

Table 5.--Area planted to high-yielding varieties of rice in less developed countries

Country	1965/66	1966/67	1967/68	1968/69	1969/70	1/
South Asia						
Ceylon 2/	--	--	--	17,200	65,100	
India 3/	17,650	2,195,000	4,408,000	6,625,000	10,800,000	
Nepal	--	--	--	105,000	123,000	
Pakistan (E)	--	500	166,000	381,500	651,700	
Pakistan (W)	--	200	10,000	761,000	1,239,000	
East Asia						
Burma	--	--	8,500	412,400	355,900	
Indonesia	--	--	--	488,400	1,850,400	4/
Laos	--	900	3,000	5,000	4,900	
Malaysia (W)	--	104,500	157,000	224,700	316,000	
Philippines 3/	--	204,100	1,733,400	2,500,000	3,345,600	4/
Vietnam (S)	--	--	1,200	100,000	498,000	
Total	17,650	2,505,200	6,487,100	11,620,200	19,249,600	

- 1/ Preliminary.
 2/ Excludes improved local varieties.
 3/ Includes improved local varieties.
 4/ Unofficial.

PRICE TRENDS

Prices normally reflect the interaction of supply and demand. In many LDCs, the government has some degree of administrative control over the internal prices of major food products. Similarly, international prices may be influenced by government policies. Still, supply and demand conditions largely set the overall stage.

Important as they are, price data are not easily assembled for the less developed countries. Often the statistics are scattered, suspect, or dated. They are **seldom** available on a farm gate basis. Because of the paucity of reliable domestic prices, we have turned to international or export prices. Even here, representative data are sometimes not available from some LDCs and it has been necessary to utilize data for DC exports. These still, however, may be valuable: (1) they suggest roughly what prices could be gained for exports on the international market; (2) they indicate what prices the commodities could be purchased for on the international market (sometimes domestic production is more costly or less expensive than the import option).

Out of the many possible commodities, we shall look at rice, wheat, corn, and coffee.

Rice

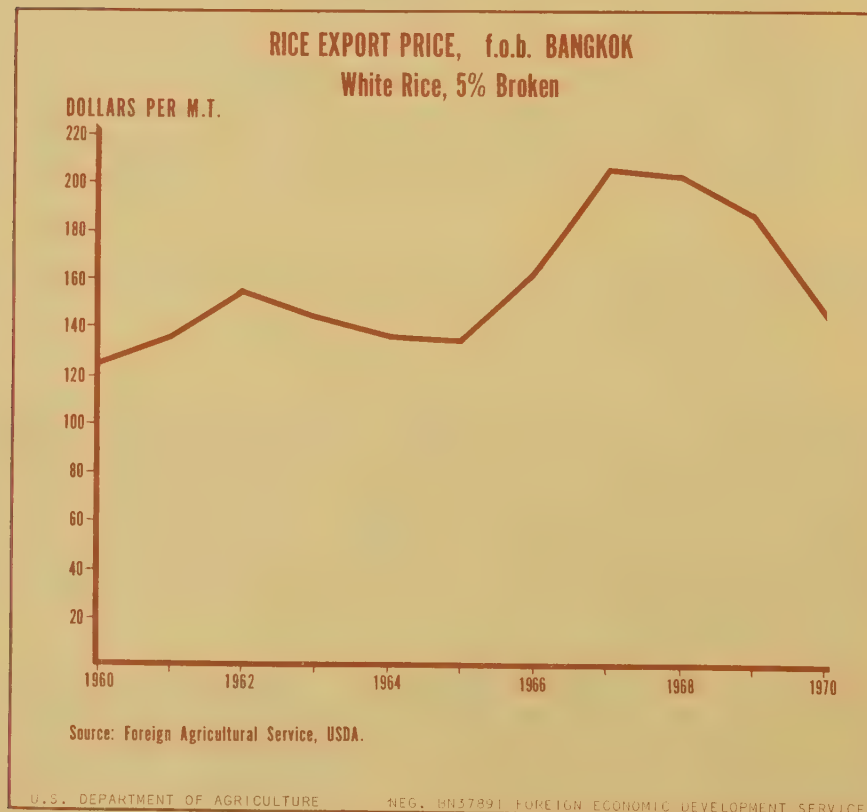
Only a small proportion, 3 to 5 percent of world rice production, is exported, and much of this trade is among the less developed countries. Two statistical series are of major interest: (a) the FAO index of prices among major exporting nations (including the United States), and (b) the actual export price of Thailand rice. Data for both series are presented in figures 4 and 5.

They reveal about the same trends: a mild increase in 1961 and 1962, a fairly stable period through 1965 (though the export price index did decline to approximately 1961 levels), a sharp increase in 1966 and 1967, and almost equally sharp declines in 1969 and 1970. The preliminary average for 1970

Figure 4



Figure 5



was at about the same level as the average of the 1962-64 period. Thus rice export prices appear to have returned to "normal."

The main reason for the sharp increase in prices in 1966 and 1967 was the poor crop conditions in South Asia combined with reduced cereal stocks in the major exporters. Just what will happen in the future is uncertain, but it seems unlikely that prices will increase greatly. As former importing nations build up their production, stocks may build up in some exporting nations. The problems are likely to be most severe for the lower qualities of rice.

Wheat

Wheat export prices have fluctuated less than those of rice. This is partly because much of the wheat production and trade is in the hands of the developed nations. In turn, most of the developed nations are signatories to the International Grains Arrangement.^{1/} Small changes in wheat production do not affect export supplies as greatly as with rice.

Since we do not have export prices of major international significance from the less developed countries (except Argentina), we turn to two North American quotations on the Rotterdam market: one from Canada and one from the United States.^{2/} (The quotations cited are for wheat used as food, not feed.)

Both prices rose to a 10-year peak during 1966/67, and then declined gradually through 1969/70. During the first 6 months of the 1970/71 season (that is, July-Dec. 1970) prices rose sharply (see figure 6).

The major reasons for these shifts probably center about (1) an unusually strong world demand in the mid-1960s brought about by large purchases by the Communist nations and poor weather in South Asia, (2) a decline in stocks in the major exporters, and (3) the recent rise in corn prices (in part related to corn blight in the United States) which has led to some substitution of wheat for corn in livestock feeding.

Corn

The corn story is much the same as for wheat. We do, however, have a quotation for Argentine corn as well as from the United States (see figure 7). Prices of both quotations increased up

^{1/} The new International Wheat Agreement, which will go into effect on July 1, 1971, contains no active pricing arrangements.

^{2/} The Argentine figure was not used for two reasons: (1) Argentina has had poor crops the last two years and has not been on the Rotterdam market this year, and (2) even in normal years Argentina is on the market only a portion of the year.

Figure 6

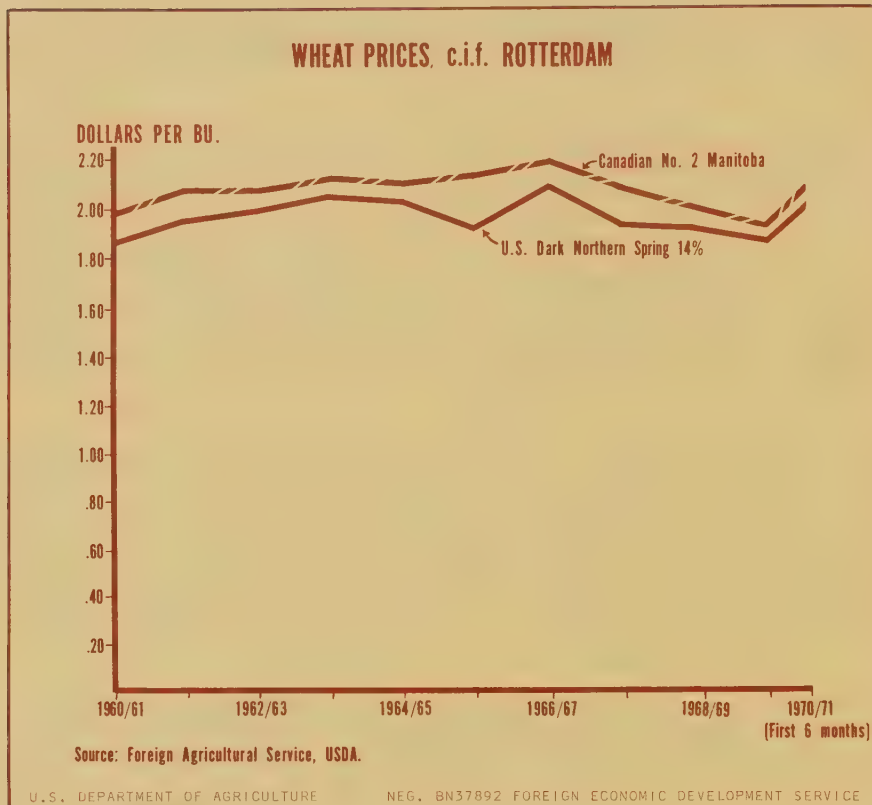
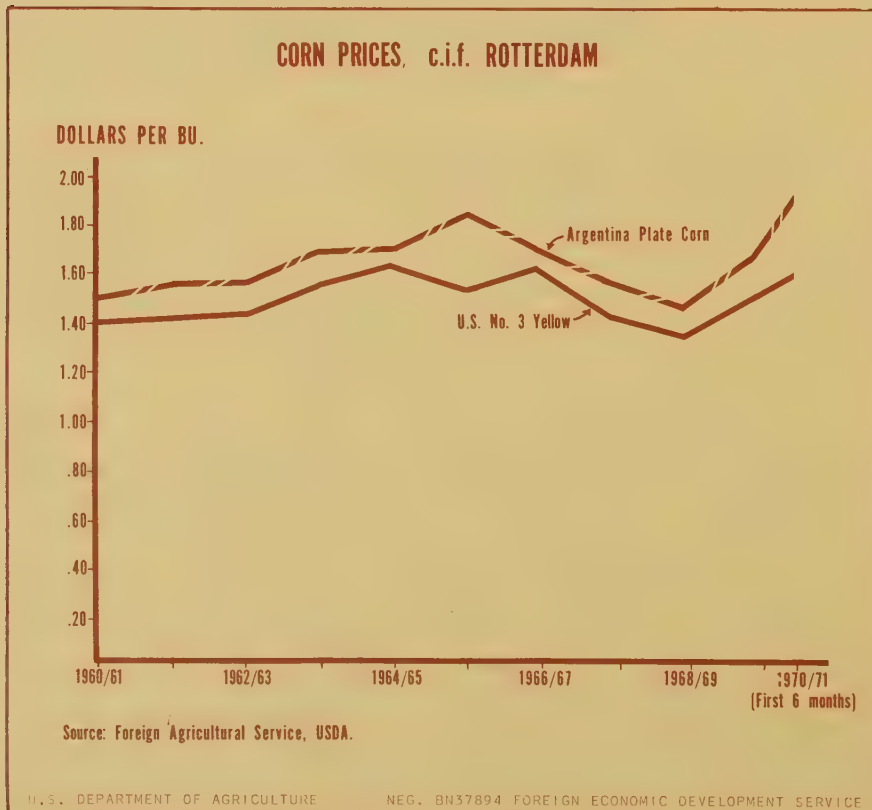


Figure 7

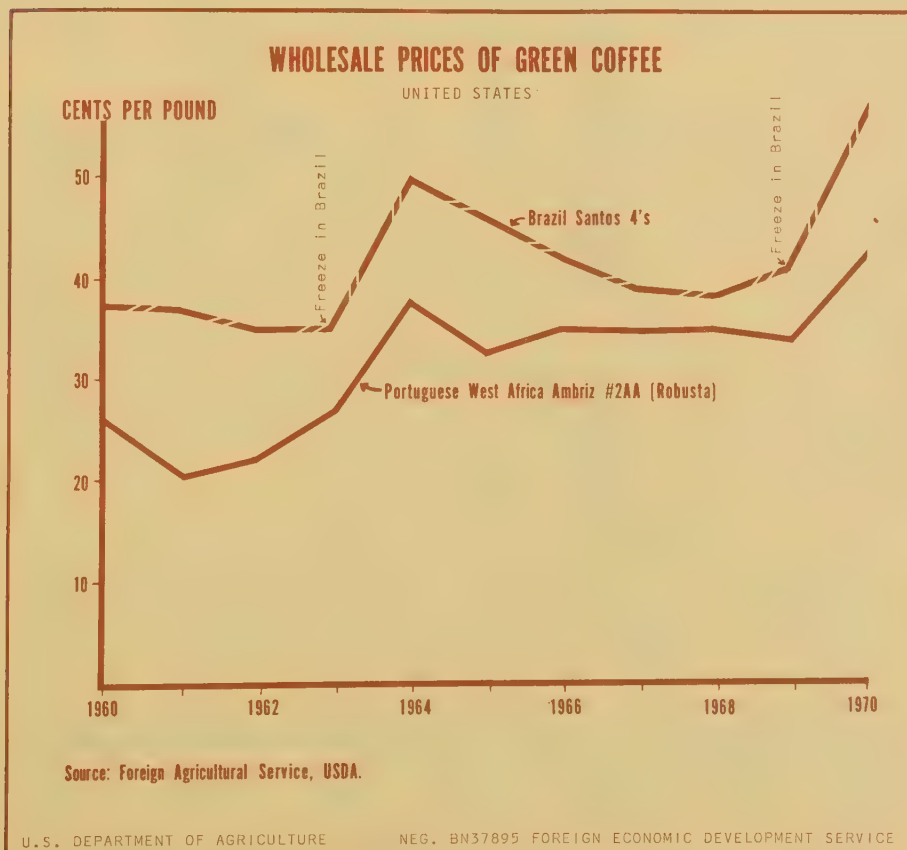


to the mid-1960s and then declined to a 10-year low in 1968/69. Prices increased sharply in 1968/69, and again during the first 6 months of the 1970/71 season. Most of the corn is imported by the developed countries for live-stock feed; hence the higher price may be primarily of interest to LDC exporters.

Coffee

Coffee is an important source of export earnings in many LDCs. Here we report wholesale prices in the United States for green coffee from Brazil and Portuguese West Africa (figure 8). Both followed somewhat the same trend, though with certain differences. Following freezes in Brazil, prices for both raised sharply the following year, in 1964, and again in 1970. The 1964 increase was followed by gradually declining prices in the interim in Brazil, whereas Portuguese prices, following a slight drop, seemed to have stabilized at a higher level. The decline in Brazilian production associated with the freeze may offset higher prices in that country. Coffee rust, moreover, may be an increasingly important problem in Brazil.

Figure 8



U.S. EXPORTS TO LDCs

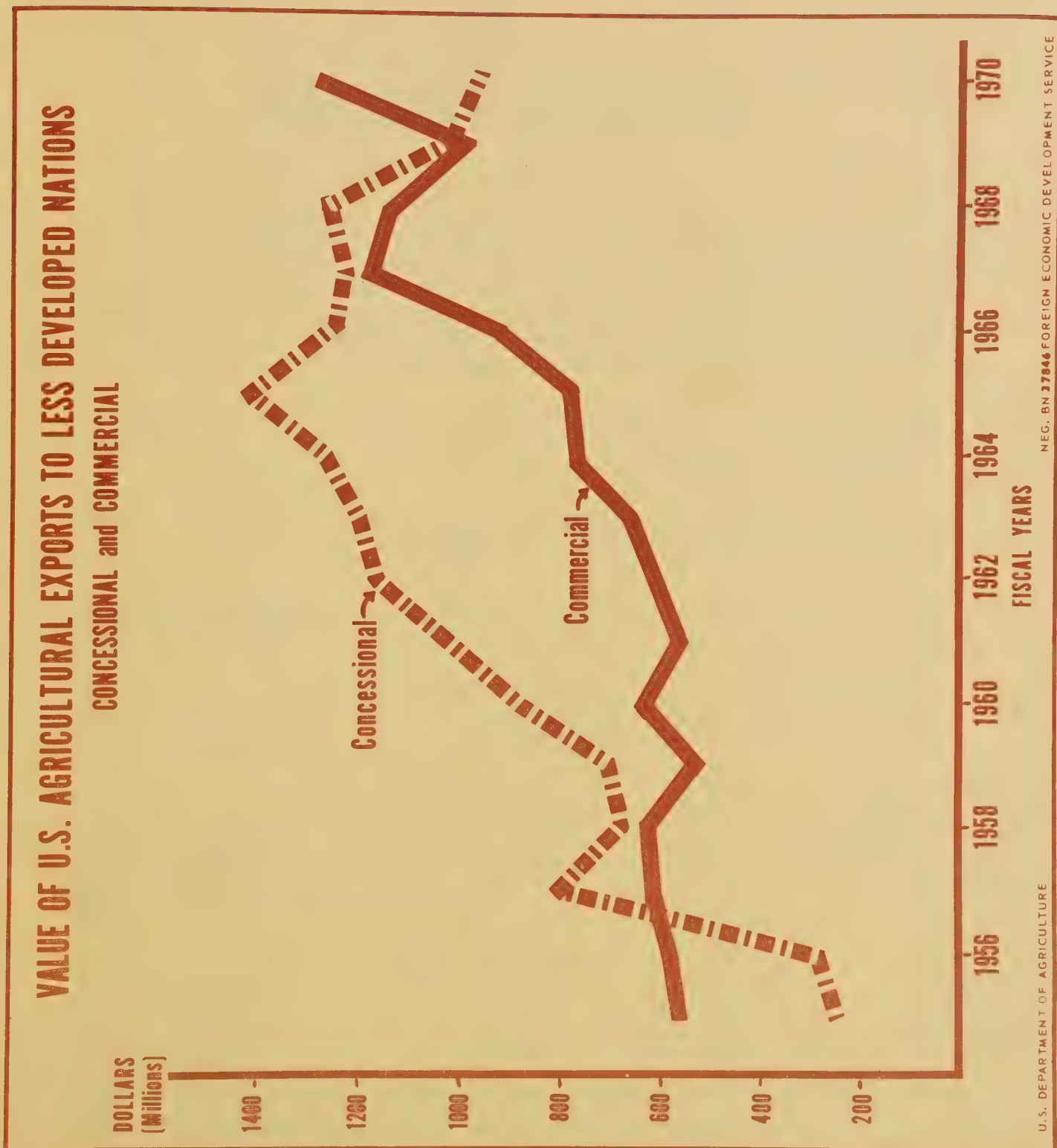
The nature of LDC trade can provide a barometer of development. But relatively few agricultural statistics are available and their interpretation can be tricky.^{1/}

There is, however, one reliable series available which may provide some guide as to the state of development. The series concerns U.S. exports to LDCs broken down by concessional (P.L. 480) and commercial sales. A decrease in concessional sales and an increase in commercial sales might be taken as a partial sign of economic growth in the LDCs. This is not wholly the case, however, because the overall level of P.L. 480 funding has declined and the terms have become harder. Still, the relative trends in sales may suggest the ability of some LDCs to shift to commercial purchases.

Data from 1955 to 1970 reveal that in 1970, for the first time, the value of commercial sales to LDCs exceeded the value of concessional sales (see figure 9). During most of the period the trend was the other way: concessional sales increased sharply through 1965 while commercial sales increased only gradually. The situation began to change in 1966 when concessional sales dropped off and commercial sales increased. By 1967 the gap was virtually eliminated. But, in 1969, both types of sales dropped off. In 1970, commercial sales began a decided uptrend while concessional sales continued the drop-off.

^{1/} About the only general aggregative series that we have for the LDCs concerns exports of wheat and rice from selected nations. The problem with the wheat figure is that it is largely made up of Argentina (80 percent for the 1959/60-63/64 period and 84 percent for 1964/65 to 1968/69) whose export variations largely reflect variations in production. Rice exports, largely from Asia, declined from 1965 to 1969; 1970 data are not yet available.

Figure 9



A large part of the value of the concessional sales in the early and mid-1960s represented wheat and wheat flour. The value of wheat and flour exceeded all other commodities in 1961 and held that position until 1966. Thereafter wheat exports dropped sharply but continued as the leading commodity.

A large portion of the wheat shipments went to India and Pakistan. As their grain production recovered, following the poor crops in 1965 and 1966, wheat imports became less needed.

Leading LDC customers for U.S. agricultural commodities in FY 1970 varied by type of program. In terms of concessional sales, India was still first, followed in decreasing order by Indonesia, South Vietnam, South Korea, Pakistan, Israel, Turkey, and Brazil. The leading commercial market was Mexico, followed in decreasing order by Taiwan, Philippines, India, Hong Kong, Korea, Israel, South Vietnam, Brazil, and Pakistan. The leading commercial consumers include many nations which were leading recipients of concessional sales.

Thus, on the basis of type of U.S. exports, there has been an improvement in the position of the LDCs as a whole and some countries in particular, especially in FY 1970.

Table 6.--Leading LDC customers for U.S. agricultural products, FY 1970

Country	Total sales	Concessional sales		Commercial sales	
		Value	Rank	Value	Rank
	Mil. dol.	Mil. dol.		Mil. dol.	
India	275.4	210.3	1	65.1	4
South Korea	171.1	118.0	4	53.1	6
South Vietnam	165.3	118.3	3	47.0	8
Mexico	138.9	--	--	138.9	1
Indonesia	131.8	131.8	2	--	--
Taiwan	114.1	--	--	114.1	2
Pakistan	107.5	73.0	5	34.5	10
Israel	95.8	45.6	6	50.2	7
Philippines	79.3	12.2	--	67.1	3
Brazil	72.2	34.5	8	37.7	9
Hong Kong	55.4	0.4	--	55.0	5
Turkey	45.4	39.0	7	6.4	--

Source: Economic Research Service, U.S. Department of Agriculture.

MORE GENERAL ECONOMIC DATA

We have presented a few selected time series indicators relating to LDC agriculture. While they do not provide a comprehensive view of agricultural development, they do provide at least a partial insight. Other indicators would have been desired to round out the picture, but few are available on an aggregative or time series basis.

Some of the other indicators which might be examined in a more comprehensive analysis of agricultural development are listed in the attached table. Population growth and gross national product, a rough indicator of income, are of course, basic factors in establishing demand. Agricultural land per capita reflects the intensity of production practices. The proportion of labor force in agriculture suggests the extent of urbanization. The daily caloric intake gives a rough measure of the quantity (but not necessarily quality) of food consumption.

While the first two categories are available on a yearly basis, the latter three are more irregularly issued, often as the result of a census. In terms of time, the only 1970 data are for population.

Still, study of these elements, in addition to the others noted in this bulletin, would help provide the basis for a general understanding of the overall conditions of agricultural development in the LDCs.

Table 7.--Selected benchmark statistics, LDC's, late 1960's or 1970

Region	Population		Gross national product		Agricultural land		Proportion of labor force in		Daily caloric intake	
	Millions	Percent	Dollars	Acres	Percent	per capita	per capita	agriculture	per capita	(Latest)
	1970	(current)	(1968)	(1970 latest)	(latest)					
Near East 1/	142.4	2.5	356 6/	3.7	58					2,554
South Asia 2/	722.0	2.5	92	0.8	73					1,969
East Asia 3/	315.0	2.7	160	0.5	62					2,050
Africa 4/	293.0	2.6	140	23.8	79					2,115
Latin America 5/	265.3	2.9	437 7/	5.0	46					2,540
United States	205.4	1.0	4,303	5.0	5					3,200

1/ Includes Cyprus, Greece, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Saudi Arabia, Southern Yemen, Syrian Arab Republic, Turkey, Egypt (UAR), and Yemen.
2/ Includes Afghanistan, Ceylon, India, Nepal, and Pakistan.
3/ Includes Brunei, **Burma**, Cambodia, Hong Kong, Indonesia, South Korea, Laos, Malaysia, Philippines, Singapore, Taiwan, Thailand, and South Vietnam. Japan is excluded.
4/ Includes all nations except Egypt (which is included with the Near East) and the Republic of South Africa.
5/ Includes Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela.
6/ Raised by relatively high levels in Greece (858), Israel (1,472), and Kuwait (3,338).
7/ Raised by relatively high levels in Venezuela (944).

Source: Economic Growth Trends reports for various regions, Agency for International Development, January 1971.

APPENDIX

FAO PRODUCTION INDEXES

The Food and Agriculture Organization of the United Nations (FAO) has recently reported a set of index numbers comparable to those presented in the first section of this report.^{1/} They indicate agricultural and food production, both on a total and per capita basis, for less developed and developed nations. Outwardly, they differ from the U.S. Department of Agriculture (USDA) figures reported here in that they are computed on a different base period (1952-56) and are based on earlier data (available as of November 15, 1970). The weighting and method of calculation may also differ.

Still, the overall trends for the less developed and developed nations are similar to those reported by USDA. And, when the changes from 1969 to 1970 are recalculated in percentage terms, they show little difference. This is illustrated in the following table for the less developed nations:

	FAO			USDA		
	Index 1969	Index (1952-56=100) 1970	Change Percent	Index 1969	Index (1961-65=100) 1970	Change Percent
Total						
Agricultural	153	158	+3.3	118	122	+3.4
Food	153	158	+3.3	120	124	+3.3
Per capita						
Agricultural	105	105	0	101	102	+1.0
Food	105	106	+1.0	103	103	0

On this basis, the changes in total production are virtually identical. The per capita figures are slightly different: the FAO data show agricultural production constant and food

^{1/} The FAO figures are presented in the January 1971 issue of the Monthly Bulletin of Agricultural Economics and Statistics. (This issue was received in Washington in early April 1971.)

production increasing slightly (+1 percent); the USDA data show the reverse. This is largely due to rounding error. Both sets of 1970 data are subject to further revision.

Regionally, the indexes may differ a bit more, but this in part may be due to differences in the number of countries included in each grouping. Also, FAO lumps South and East Asia together into an East Asian classification.

Individual countries also vary. In the case of five countries discussed in the text (Mexico, Brazil, India, Pakistan, Egypt, and Nigeria), FAO has reported indexes on all but Nigeria. The FAO indexes for Mexico show decreased rather than increased production, but this is thought to be due to an error in the reporting of cotton production in 1969. The indexes for the other three countries show the same direction of change, though the degrees of magnitude are different.

RELATED REPORTS

	<u>Release Date</u>
<u>World Agricultural Situation</u> Economic Research Service, U.S. Department of Agriculture	Annual--November
<u>Regional Reports</u>	
1. Western Hemisphere	(
2. Western Europe	(
3. Communist Areas	(Annual--April/May
4. Far East and Oceania	(
5. Africa and West Asia	(
<u>World Agricultural Production</u> <u>and Trade: Statistical Report</u> Foreign Agricultural Service, U.S. Department of Agriculture	Monthly
<u>Foreign Agricultural Trade of</u> <u>the United States</u> , Economic Research Service, U.S. Depart- ment of Agriculture	Monthly
<u>Foreign Agriculture magazine</u> , Foreign Agricultural Service, U.S. Department of Agriculture	Weekly
<u>State of Food and Agriculture</u> Food and Agriculture Organization of the United Nations	Annual--August
<u>Production Yearbook</u> , Food and Agri- culture Organization of the United Nations	Annual--August
<u>Trade Yearbook</u> , Food and Agriculture Organization of the United Nations	Annual--August

